

**REMARKS**

The Examiner objected to claim 26 allegedly "because of the following informalities: A minor typographical error appears to exist: the expression "solution solution" modifies acid."

The Examiner objected to claims 20, 21, 29, 34, 36, 38-40 and 42 under 37 CFR 1.75©), as allegedly "being of improper dependent form for failing to further limit the subject matter of a previous claim."

The Examiner rejected claims 26, 31, and 41 under 35 U.S.C. §112, second paragraph, as allegedly "being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."

The Examiner rejected claim 41 under 35 U.S.C. §112, second paragraph, as allegedly "being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections."

The Examiner rejected claims 26, 27, 19-22, 28, 29, 31-36, and 38-42 under 35 U.S.C. §103(a) as allegedly being unpatentable over United States Patent No. 4,350,564 to Wei and Geshner.

The Examiner rejected claims 30 and 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Wei and Geshner as discussed above and United States Patent No. 5,149,404 to Blonder.

Applicants respectfully traverse the objections and rejections under §112, second paragraph and §103(a) as follows.

Objections

The Examiner objected to claim 26 allegedly "because of the following informalities: A minor typographical error appears to exist: the expression "solution solution" modifies acid. If appropriate, correction is required."

In response the preceding objection to claim 26, Applicants have diligently searched claim 26 for the appearance of "solution solution" but cannot find it. Applicants would be grateful if the Examiner would recheck claim 26 for the appearance of "solution solution", and if the Examiner again finds "solution solution" in claim 26, Applicants would appreciate the Examiner's assistance in identifying where "solution solution" appears in claim 26 so that Applicants could make the correction by amendment.

The Examiner objected to claims 20, 21, 29, 34, 36, 38-40 and 42 under 37 CFR 1.75(c), as allegedly "being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. As has been discussed throughout the prosecution patentable weight will not be accorded to the method when the invention claims an apparatus. Applicant may elect to pursue an application claiming the invention in kit form or claim the invention as a method. Concentrations and temperatures are better-suited method types claims. Etch rates are usually meaningful only to the extent that there is an associated process step that results in the claimed etch rate. The claims are rejected with their base claims."

Applicants next present arguments as to why the preceding objections to claims 20, 21, 29, 34, 36, 38-40 and 42 is improper.

As to claim 20, Applicants respectively contend that claim 20 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of "the acid solution includes **hydrochloric acid**" (emphasis added) is a limitation on the composition of the acid solution. The feature of "the acid solution includes hydrochloric acid **in a liquid bath form**" (emphasis added) is a limitation on the structural form of the acid solution. Either of the preceding two features of claim 20 further limits claim 26 from which claim 20 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 20 is improper and should be withdrawn.

As to claim 21, Applicants respectively contend that claim 21 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of "the acid solution includes **hydrochloric acid**" (emphasis added) is a limitation on the composition of the acid solution. The feature of "the acid solution includes hydrochloric acid **in a spray form**" (emphasis added) is a limitation on the structural form of the acid solution. Either of the preceding two features of claim 21 further limits claim 26 from which claim 21 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 21 is improper and should be withdrawn.

As to claim 29, Applicants respectively contend that claim 29 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of "wherein the chromium volume includes the **metallic chromium**" (emphasis added) is a limitation on the composition of the chromium volume. The feature of "the acid solution includes **hydrochloric acid**" (emphasis added) is a limitation on the composition of the acid solution. The feature of "wherein a temperature (**T**) and a molarity (**M**) of the hydrochloric acid is within a triangular space defined by

(T,M) points of (21 °C, 2.4 M), (52 °C, 2.4 M), and (52 °C, 1.2 M)” is a limitation on the temperature and molar concentration of the acid solution.. Any one feature of the preceding three features of claim 29 further limits claim 26 from which claim 29 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 29 is improper and should be withdrawn.

As to claim 39, Applicants respectively contend that claim 39 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of “wherein the acid solution is adapted to etch the chromium volume at a second etch rate that exceeds the first etch rate” (emphasis added) is an intended use feature and not a method limitation. Applicants recognize that there is a question of patentable weight when an intended use appears in the preamble of a claim. However, the intended use feature in claim 39 appears in the body of the claim and not in the preamble, and therefore has patentable weight. Whether the intended use feature distinguishes over the prior art depends on whether the prior art recites structure that is capable of performing the intended use. However, whether the intended use distinguishes over the prior art is a statutory issue under 35 U.S.C. §102 or 35 U.S.C. §103 and is not relevant to the objection under consideration in the present petition. Therefore, the intended use feature in claim 39 has patentable weight for further limiting claim 26 from which claim 39 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 39 is improper and should be withdrawn.

As to claim 40, Applicants respectively contend that claim 40 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of “wherein the acid solution is adapted to etch the chromium volume at a second etch rate that exceeds the first etch rate”

(emphasis added) is an intended use feature and not a method limitation. See *supra* discussion of claim 39 as to why the intended use language in the body of claim 40 has patentable weight for further limiting claim 39 from which claim 40 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 40 is improper and should be withdrawn.

As to claim 34, Applicants respectively contend that claim 34 does not include any method limitation as alleged by the Examiner. Claim 34 includes the feature of “wherein the acid solution is not in contact with the layer of conductive metal”, which is a structural limitation and not a method limitation. Said feature of claim 34 further limits claim 33 from which claim 34 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 34 is improper and should be withdrawn.

As to claim 36, Applicants respectively contend that claim 36 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of “wherein the chromium volume includes the **metallic chromium**” (emphasis added) is a limitation on the composition of the chromium volume. The feature of “the acid solution includes **hydrochloric acid**” (emphasis added) is a limitation on the composition of the acid solution. The feature of “wherein a temperature (T) and a molarity (M) of the hydrochloric acid is within a triangular space defined by (T,M) points of (21 °C, 2.4 M), (52 °C, 2.4 M), and (52 °C, 1.2 M)” is a limitation on the temperature and molar concentration of the acid solution. Any one feature of the preceding three features of claim 36 further limits claim 31 from which claim 31 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 31 is improper and should be withdrawn.

As to claim 38, Applicants respectively contend that claim 38 does not include any method limitation as alleged by the Examiner. Furthermore, the feature of “wherein the acid solution is adapted to etch the chromium volume at a second etch rate that exceeds the first etch rate” (emphasis added) is an intended use feature and not a method limitation. See *supra* discussion of claim 39 as to why the intended use language in the body of claim 38 has patentable weight for further limiting claim 31 from which claim 38 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 38 is improper and should be withdrawn.

As to claim 42, Applicants respectively contend that claim 42 does not include any method limitation as alleged by the Examiner. Claim 42 includes the feature of “wherein the acid solution is not in contact with the layer of conductive metal”, which is a structural limitation and not a method limitation. Said feature of claim 42 further limits claim 41 from which claim 42 depends. Based on the preceding argument, Applicants respectfully maintain that the objection to claim 42 is improper and should be withdrawn.

Applicants’ authorized representative discussed the preceding objection to claims 20, 21, 29, 34, 36, 38-40 and 42 with the Examiner in a telephone conversation on 02/26/2004. In said telephone conversation, the Examiner maintained the Examiner’s position that the objection is proper and suggested that Applicants may file a petition if they so desire. As a result, Applicants have filed a petition on 02/27/2004 to resolve this issue.

**35 U.S.C. §112, Second Paragraph**

The Examiner rejected claims 26, 31, and 41 under 35 U.S.C. §112, second paragraph, as allegedly "being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is unclear what is being claimed when referencing an "electrical structure" More specifically, the claims disclose "an electrical structure" wherein an "acid solution is in contact with both the iron comprising body and the chromium volume within the opening."

In response to the preceding rejection of claim 26 under 35 U.S.C. §112, second paragraph, Applicants respectfully note that in claim 26 the acid solution is an element of the electrical structure. Also in claim 26, the limitation "wherein the portion of the acid solution is in contact with both the portion of the iron-comprising body and the chromium volume" is a limitation that requires the acid solution to be in contact with both the portion of the iron-comprising body and the chromium volume. Thus, Applicants respectfully maintain that what is being claimed in claim 26 is clear. Accordingly, Applicants respectfully request withdrawal of the preceding rejection of claim 26 under 35 U.S.C. §112, second paragraph.

In response to the preceding rejection of claim 31 under 35 U.S.C. §112, second paragraph, Applicants respectfully note that in claim 31 the acid solution is an element of the electrical structure. Also in claim 31, the limitation of "an acid solution in contact with both the chromium volume and the iron-comprising body" is a limitation that requires the acid solution to be in contact with both the chromium volume and the iron-comprising body. Thus, Applicants respectfully maintain that what is being claimed in claim 31 is clear. Accordingly, Applicants respectfully request withdrawal of the preceding rejection of claim 31 under 35 U.S.C. §112,

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second paragraph.

In response to the preceding rejection of claim 41 under 35 U.S.C. §112, second paragraph, Applicants respectfully note that in claim 41 the acid solution is an element of the electrical structure. Also in claim 41, the limitation of "an acid solution in contact with both the chromium volume and the iron-comprising body" is a limitation that requires the acid solution to be in contact with both the chromium volume and the iron-comprising body. Thus, Applicants respectfully maintain that what is being claimed in claim 41 is clear. Accordingly, Applicants respectfully request withdrawal of the preceding rejection of claim 41 under 35 U.S.C. §112, second paragraph.

The Examiner rejected claim 41 under 35 U.S.C. §112, second paragraph, as allegedly "being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: If the acid were to be accepted to be a structure, which it is not, the claims would be rejected as failing to disclose how the acid interacts with the structural components of the claim(s)."

In response to the preceding rejection of claim 41 under 35 U.S.C. §112, second paragraph, Applicants respectfully contends that a relevant relationship between the acid solution and other elements of claim 41, namely the chromium volume and the iron-comprising body, is: "an acid solution in contact with both the chromium volume and the iron-comprising body". Based on the preceding argument, Applicants respectfully request withdrawal of the preceding rejection of claim 41 under 35 U.S.C. §112, second paragraph.

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35 U.S.C. §103(a)

The Examiner rejected claims 26, 27, 19-22, 28, 29, 31-36, and 38-42 under 35 U.S.C. §103(a) as allegedly being unpatentable over United States Patent No. 4,350,564 to Wei and Geshner.

As to independent claims 26, 31, and 41, the Examiner argues: "With specific respect to claims disclosing an electrical structure comprising: a chromium volume, and a layer of conductive material, wherein the chromium volume includes a layer of chromium, wherein the layer of conductive metal is on the layer of chromium, wherein the conductive metal includes an opening extending through its thickness. Wherein the opening exposes the layer of chromium. The same is identically disclosed in figure 4E of Wei and associated relevant text. It is noted that it is unclear whether the iron comprising body is part of the structure or is drawn to a future intended use. The specification suggests that the iron containing body is a probe (see element 22 of the instant invention) if the iron is a mere probe than it is not properly part of the structure. Exactly what weight should be accorded the probe is unclear. However, in the interests of being rigorous, Geshner discloses a probe and explicitly provides the motivation for making the instant combination. Specifically, Geshner discloses: "the probe is brought into contact with the undesired areas 16, it has been found that a reaction will be initiated which will cause only the undesired areas 16 to be completely etched away." The artisan would have made to combination for improved etch selectivity."

Applicants respectfully contend that claims 26, 31, and 41 are not unpatentable over Wei and Geshner, because Wei and Geshner does not teach or suggest each and every feature of claims 26, 31, and 41. For example, Wei and Geshner does not teach or suggest the feature: "an iron-

comprising body ... wherein a portion of the iron-comprising body is within the opening, wherein the portion of the iron-comprising body is in electrical contact with the chromium volume" (claim 26); and Wei and Geshner does not teach or suggest the feature "an iron-comprising body in electrical contact with the chromium volume" (claims 31 and 41). In particular, Applicants respectfully content that the Examiner's argument for modifying Wei by adding the metal probe disclosed by Geshner is not persuasive, because Wei does not require or need improved etch selectivity. Nowhere does Wei disclose any problem whatsoever with etch selectivity, or any need for improved etch selectivity, in etching the chromium film 18 shown in the transition from FIG. 3C to FIG. 3D of Wei. Wei etches the chromium film 18 with hydrochloric acid (see Wei, col. 3, lines 7-15) and uses a "layer of material 19 which is resistant to the etching of hydrochloric acid..." (see Wei, col. 2, lines 59-64). In addition, a silicon dioxide layer 16 underlies the chromium film 18 (see Wei, col. 2, lines 52-59) and silicon dioxide is etch resistant. In fact, Wei contemplates the use of silicon dioxide as an embodiment for the etch resistant layer 19 (see Wei, col. 5, lines 14-17). Thus, Wei has no need for etch selectivity improvement, and incorporating Geshner's metal probe into Wei would add unnecessary complexity and expense.

In addition, Wei and Geshner does not teach or suggest the feature: "wherein the portion of the acid solution is in contact with both the portion of the iron-comprising body and the chromium volume" (claim 26-); and Wei does not teach or suggest the feature: "an acid solution in contact with both the chromium volume and the iron-comprising body" (claims 31 and 41). Indeed, the Examiner's argument in rejecting independent claims 26, 31, and 41 is totally silent as to the existence of the acid solution, and the Examiner has offered no argument as to how and why Wei in view of Geshner teaches the aforementioned feature relating to the acid solution. If

the Examiner views the acid solution as having no patentable significance in claims 26, 31, and 41, the Examiner has not presented any supporting analysis and has not cited any legal authority to support such a view. In summary, the Examiner has not satisfied the Examiner's burden to prove a *prima facie* case of obviousness with respect to the acid solution related features of claims 26, 31, and 41.

Based on the preceding arguments, Applicants respectfully maintain that claims 26, 31, and 41 are not unpatentable over Wei and Geshner, and that claims 26, 31, and 41 are in condition for allowance. Since claims 19-22, 27-29 and 39 depend from claim 26, Applicants contend that claims 19-22, 27-29 and 39 are likewise in condition for allowance. Since claims 32-36, 38 and 40 depend from claim 31, Applicants contend that claims 32-36, 38 and 40 are likewise in condition for allowance. Since claim 42 depends from claim 41, Applicants contend that claim 42 is likewise in condition for allowance.

The Examiner rejected claims 30 and 37 under 35 U.S.C. §103(a) as allegedly being unpatentable over Wei and Geshner as discussed above and United States Patent No. 5,149,404 to Blonder. Since claims 30 and 37 respectfully depend from claims 26 and 31, which Applicants have argued *supra* to be patentable under 35 U.S.C. §103(a), Applicants maintain that claims 30 and 37 are not unpatentable under 35 U.S.C. §103(a).

CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below.

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